

| L<br>Number | Hits    | Search Text  | DB  | Time stamp          |
|-------------|---------|--|---|---------------------|
| 1           | 1235398 | optical  | USPAT;<br>US-PGPUB;<br>EPO; JPO;<br>DERWENT;<br>IBM TDB<br>USPAT; | 2001/09/05<br>10:05 |
| 2           | 38516   | logic adj2 gate  | US-PGPUB;<br>EPO; JPO;<br>DERWENT;<br>IBM TDB<br>USPAT;           | 2001/09/05<br>10:06 |
| 3           | 434     | optical with (logic adj2 gate)                           | US-PGPUB;<br>EPO; JPO;<br>DERWENT;<br>IBM TDB<br>USPAT;           | 2001/09/05<br>10:06 |
| 4           | 322713  | interference   | US-PGPUB;<br>EPO; JPO;<br>DERWENT;<br>IBM TDB<br>USPAT;           | 2001/09/05<br>10:06 |
| 5           | 89      | (optical with (logic adj2 gate)) and<br>interference     | US-PGPUB;<br>EPO; JPO;<br>DERWENT;<br>IBM TDB<br>USPAT            | 2001/09/05<br>10:15 |
| 6           | 52854   | (257/\$)[ccls]   | USPAT   | 2001/09/05<br>10:16 |
| 7           | 20      | (optical with (logic adj2 gate)) and<br>((257/\$)[ccls]) | USPAT   | 2001/09/05<br>10:19 |
| 8           | 5710    | planarizing  | USPAT   | 2001/09/05<br>10:19 |
| 9           | 1       | (optical with (logic adj2 gate)) and<br>planarizing      | USPAT   | 2001/09/05<br>10:19 |
| 10          | 1121    | ((257/\$)[ccls]) and planarizing                         | USPAT   | 2001/09/05<br>10:20 |
| 11          | 7746    | doped adj silicon  | USPAT   | 2001/09/05<br>10:20 |
| 12          | 29      | planarizing with (doped adj silicon)                     | USPAT   | 2001/09/05<br>10:21 |
| 13          | 42316   | (438/\$)[ccls]   | USPAT   | 2001/09/05<br>10:21 |
| 14          | 3       | (optical with (logic adj2 gate)) and<br>((438/\$)[ccls]) | USPAT   | 2001/09/05<br>10:22 |

US-PAT-NO: 5239173

DOCUMENT-IDENTIFIER: US 5239173 A // 5,160,838.

TITLE: Binary data processor using diffraction and interference of waves

DATE-ISSUED: August 24, 1993

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE |
|------|------|-------|----------|
|------|------|-------|----------|

COUNTRY

|               |          |     |     |
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| Yang; Tai-Her | Dzan-Hwa | N/A | N/A |
|---------------|----------|-----|-----|

TWX

APPL-NO: 7/ 895931

DATE FILED: June 9, 1992

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS The present invention constitutes a continuation-in-part of U.S. patent application Ser. No. 580,637 filed on

Sep. 11, 1990, now U.S. Pat. No. 5,160,838, which in turn is a continuation-in-part of U.S. patent application Ser. No. 372,629 filed on

Jun. 28, 1989, abandoned, which in turn is a continuation-in-part of U.S.

patent application Ser. No. 069,153 filed on Jul. 2, 1987, abandoned, the

disclosures of which are incorporated herein by their entireties, respectively.

INT-CL: [5] H01J040/14

US-CL-ISSUED: 250/214S, 377/102

US-CL-CURRENT: 250/214LS, 377/102

FIELD-OF-SEARCH: 250/551; 250/214LS ; 377/102 ; 365/109 ; 365/110  
; 365/111 ; 359/558  
; 359/565 ; 359/566 ; 359/561

REF-CITED:

U.S. PATENT DOCUMENTS

| PAT-NO  | ISSUE-DATE    | PATENTEE-NAME | US-CL     |
|---------|---------------|---------------|-----------|
| 3358146 | December 1967 | Ing et al.    | 250/214LS |
| 3680080 | July 1972     | Maure         | 250/214LS |

ART-UNIT: 259

PRIMARY-EXAMINER: Nelms; David C.

ATTY-AGENT-FIRM: Bloom; Leonard

ABSTRACT:

An optical binary data processor which utilizes a plurality of light beams (or other waves, such as sound waves) which diffract at two or more apertures and which interfere such that the resulting pattern of illumination may be read to yield a particular logic operation. The optical data

processor is capable  
of performing conventional binary logic operations on anywhere  
from two to N  
optical inputs, and multiple processors may be cascaded to  
perform any level of  
combinational logic.

35 Claims, 6 Drawing figures